

REMARKS

Claims 13-36 are pending in the application. By this Amendment, claims 13 and 32 are amended. Reconsideration and withdrawal of the rejections in view of the foregoing amendments and the following remarks is respectfully requested.

Entry of the amended claims is proper under 37 C.F.R. §1.116 since the amendments: (1) place the application in condition for allowance (for the reasons discussed herein); (2) do not raise any new issues requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution without incorporating additional subject matter); (3) satisfy a requirement of form asserted in the previous Office Action; and/or (4) place the application in better form for appeal (if necessary). The amendment to claim 32 merely corrects a typographical error. The amendment to claim 13 results in the moving step of claim 13 being similar to the moving steps recited in claim 21 and 33. Thus, the amendment to claim 13 does not raise any new issues which would require further consideration and/or a new search. Accordingly, entry of these amendments is respectfully requested.

I. The Election Requirement

The Office Action includes an Election Requirement between Species A, Figure 5, and Species B, Figures 2 and 3. Applicant notes that Species A has two separate conveyors with a PCB distribution unit 80 and a PCB recovery unit 90 capable of moving PCBs between the two conveyors. Species B includes a moving member 20 upon which a PCB 12 may be mounted.

The moving member 20 is capable of moving a PCB between a plurality of positions within a working area of the mounting machine.

The Office Action appears to assert that originally filed claims 1-12 were all directed to Species A. Accordingly, the Office Action appears to assert that Applicant constructively elected Species A. For this reason, the Office Action purports to withdraw claims 28-36 from consideration as directed to a non-elected invention.

Applicant initially notes that originally filed claims 1-12 were not all directed to Species A, as shown in Figure 5. Instead, only claims 8-12 were directed to Species A. Originally filed claims 1-7 were directed to Species B, as shown in Figures 2 and 3.

Because the Examiner has already conducted a search for the subject matter of both species, and has examined all of original claims 1-12, it is respectfully submitted that the imposition of an Election Requirement at this time is improper. For at least this reason, it is respectfully requested the Election Requirement be withdrawn and that all pending claims be examined on the merits.

To the extent the Election Requirement is made Final, Applicant understands that further prosecution will be directed to Species A, as shown in Figure 5. It is respectfully submitted that claims 13-17, 21-25 and 28-34 are generic to each of the two inventions. Further, it is respectfully submitted that only claim 18 is limited to Species B. Claims 13-17 and 19-36 all read on Species A, as shown in Figure 5. Thus, to the extent that the Election Requirement is made Final, it is respectfully submitted that only claim 18 should be withdrawn from consideration.

II. The Claims Are Allowable over Okumura

The Office Action rejects claim 13-18 and 21-25 under 35 U.S.C. §102(b) over Okumura (U.S. Patent No. 4,914,808). Because Okumura fails to disclose or suggest all the features of these claims, the rejection is respectfully traversed.

Okumura discloses an automatic electronic parts mounting apparatus. As shown in Figure 1, the apparatus includes a turntable T which is rotatable. A plurality of suction nozzles 6 are attached to the turntable T. The device is configured so that the suction nozzles 6 can pick up an electronic component from conveyor units 4, and then the turntable T rotates so that the suction nozzle holding the electronic component is positioned over a positioning unit 7. The positioning unit 7 checks the orientation of the electronic component held by the suction nozzle 6. After correcting for any positioning errors, the turntable is then rotated again so that the suction nozzle holding the electronic component is positioned over a printed circuit board 11, mounted on an X-Y moveable table 10. The suction nozzle 6 then lowers the electronic component and places it onto the appropriate spot on the printed circuit board 11.

Because of the way the Okumura apparatus is configured, only a single electronic component can be mounted on the printed circuit board at a time. The turntable must be rotated 90° and the printed circuit board 11 must be repositioned by the moveable table 10 before each new component can be mounted on the printed circuit board. Thus, it requires a significant amount of time to mount all of the electronic components onto the printed circuit board.

A. Claims 13-18

Claim 13 is directed to a method for surface mounting electrical components on a printed circuit board (PCB). Claim 13 includes the steps of picking up a plurality of electrical components with a corresponding plurality of suction nozzles, and moving the plurality of suction nozzles simultaneously to substantially simultaneously mount a plurality of electrical components on a PCB. A method as recited in claim 13 allows several electrical components to be mounted on the PCB at the same time, which reduces the total time required to construct a complete PCB as compared to prior art mounting devices and methods in which a single electrical component at a time is mounted on the PCB.

As discussed above, the Okumura reference discloses a system and method where a single electrical component at a time is mounted on a PCB. Thus, Okumura fails to disclose or suggest a step of moving a plurality of suction nozzles simultaneously to substantially simultaneously mount a plurality of electrical components on a PCB, as recited in claim 13. For at least this reason, it is respectfully submitted that claim 13 is allowable over Okumura.

Claims 14-18 depend from claim 13 are allowable for at least the reasons discussed above in connection with claim 13. The dependent claims also recite additional features which are not shown or suggested by Okumura. For instance, claim 15 recites that the moving step comprises simultaneously moving the plurality of suction nozzles with respect to each other to mount the electrical components on the PCB. In Okumura, although the suction nozzles rotate with the turntable, they are fixed with respect to each other. In addition, claim 18 recites transferring the

PCB from a conveyor to a moving member and locating the moving member at a first mounting position. These features are also not shown by Okumura. It is respectfully submitted that the dependent claims are also allowable for these additional reasons.

B. Claims 21-25

Claim 21 is also directed to a method for surface mounting electrical components on a PCB. Claim 21 recites picking up a plurality of electrical components with a corresponding plurality of suction nozzles, and moving the plurality of suction nozzles with respect to the PCB and with respect to each other to substantially simultaneously mount a plurality of electrical components on the PCB. As discussed above, Okumura fails to disclose or suggest any method in which a plurality of electrical components are substantially simultaneously mounted on a PCB, or a method in which a plurality of suction nozzles are moved with respect to each other. For at least this reason, it is respectfully submitted that claim 21 is also allowable over Okumura.

Claims 22-25 depend from claim 21 and are allowable for at least the reasons discussed above in connection with claim 21. In addition, the dependent claims recite additional features which are also not shown or suggested by Okumura. For instance, claim 23 recites that the moving step comprises simultaneously moving the plurality of suction nozzles with respect to each other to mount the electrical components on the PCB. Claim 24 recites that the moving step comprises simultaneously moving the plurality of suction nozzles with respect to each other

in both the X and the Y directions. It is respectfully submitted that the dependent claims are also allowable for these additional reasons.

In view of all the foregoing, withdrawal of the rejection of claims 13-18 and 21-25 is respectfully requested.

III. Claims 19, 20, 26 and 27 are allowable over Okumura and Togami

The Office Action rejects claims 19, 20, 26 and 27 under 35 U.S.C. §103(a) over Okumura, in view of Togami (U.S. Patent No. 5,855,059). Because these references fail to disclose or suggest all the features of these claims, and because the combination of references is improper, the rejection is respectfully traversed.

A full discussion of the Togami reference is provided in the Remarks of the Amendment filed November 6, 2002.

The Office Action appears to suggest that Togami discloses moving a printed circuit board from a first conveyor to a second conveyor. The Office Action states that Togami teaches a step of transferring a PCB from a first conveyor 14 in Figure 1 to a second conveyor 15 before performing a locating step. This explanation is not understood. Elements 14 and 15 shown in Figure 1 are two conveyor belts which are part of the same conveyor. A printed circuit board would rest on the two belts 14, 15 and the belts would then be moved to convey the PCB between different locations. Thus, Togami only discloses a single conveyor.

Claims 19 and 20 depend from claim 13. Because Togami fails to cure the deficiencies of Okumura discussed above, it is respectfully submitted that claims 19 and 20 are allowable for at least the reasons discussed above in connection with claim 13.

Claim 19 recites that the method further comprises transferring a PCB from a first conveyor to a second conveyor before performing the locating step. Claim 20 depends from claim 19 and further recites transferring the PCB from the second conveyor back to the first conveyor after performing the moving step.

Because neither Okumura nor Togami disclose or suggest moving a PCB from a first conveyor to a second conveyor, or from a second conveyor back to a first conveyor, it is respectfully submitted that claims 19 and 20 are also allowable for these additional reasons.

Claims 26 and 27 depend from claim 21. It is respectfully submitted that claims 26 and 27 are allowable for at least the reasons discussed above in connection with claim 21. In addition, claim 26 further recites transferring a PCB from a first conveyor to a second conveyor before performing the locating step. Claim 27 depends from claim 26 and further recites transferring the PCB from the second conveyor back to the first conveyor after performing the moving step. Because neither Okumura nor Togami disclose these features, it is respectfully submitted that claims 26 and 27 are also allowable for these additional reasons.

For at least the foregoing reasons, withdrawal of the rejection of claims 19, 20, 26 and 27 is respectfully requested.

In addition, it is respectfully submitted that one of ordinary skill in the art would have had no motivation to combine any portion of the devices and methods disclosed in Togami into the devices and methods disclosed in Okumura. The Togami surface mounter operates in a completely different fashion than the Okumura mounting apparatus. The Okumura mounting apparatus has no need for any of the moving parts or conveyors disclosed in the Togami reference. For this additional reason, it is respectfully submitted that the combination of Togami with Okumura is improper and withdrawal of the rejection on these grounds is also respectfully requested.

IV. Conclusion

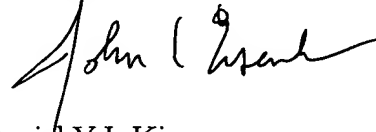
In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Serial No. 09/586,797

Docket No. MRE-0028

- To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is
- hereby made. Please charge any shortage in fees due in connection with the filing of this paper,
 - including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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